

REMARKS

The Office Action dated December 12, 2007, has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

Claims 1-44 are currently pending in the application, of which claims 1, 8, 15, 17, 24, 31, 33, and 39 are independent claims. Claims 1, 8, and 17 have been amended, and claims 33-44 have been added, to more particularly point out and distinctly claim the invention. No new matter has been added. Claims 1-44 are respectfully submitted for consideration.

Claims 1-7 and 17-23 were rejected under 35 U.S.C. 101, as being inoperative, and consequently lacking utility. The Office Action asserted that the claim is “inoperable” as the first data record and the second data record cannot be consecutive data records in the database wherein the second data record has yet to have been stored on the database.” Applicants respectfully traverse this rejection.

Specifically, the rejection is improper because (contrary to the Office Action’s assertion) there is no requirement in the claim that the first and second database records are consecutive records in the database while the second data record is yet to be stored. Such an interpretation of the claim is incorrect, because it tends to lead to an inoperative view of the invention.

The claims must be given a reasonable interpretation. See MPEP 904.01, In re Morris, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997); and MPEP 2111. The

interpretation given by the Examiner is not reasonable, because it results in the arguably (as seen in the Office Action) inoperative result of a data record existing in a database in which it has not yet been stored. The reasonable interpretation is that the thing identified by the label “second data record” is initially to be stored, and then later is stored, consecutively to the first data record. This interpretation is supported by the recitations in the claims of “to be stored” (in the first line of the claim) and “storing … consecutive to the first data record” in the third line of the claim (formerly at the end of the claim). In contrast, the Examiner’s interpretation is simply based on the recitation “wherein the first data record and the second data record are consecutive data records in the database” which does not specify (as would be required by the Examiner’s interpretation) that they are consecutive records in the database before one of them is stored in the database, and which has been removed from claims 1 and 17.

In any event, since there is an alternative interpretation of the claims that is reasonable, and that results in an operable invention, the only legally permissible recourse the Examiner has is to adopt the reasonable interpretation and withdraw the rejection. Accordingly, it is respectfully submitted that the rejection was incorrect, or – at least – that the rejection is now moot in view of the amendments to the claims. Thus, withdrawal of the rejection is respectfully requested. Since there is no relevant prior art (as essentially admitted at page 3 of the Office Action), the claims should be allowed.

Claims 8, 12-13, 15, 24, 28-29, and 31 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,968,349 of Owen et al. (“Owen”) in view of no other cited art. Applicants respectfully traverse this rejection.

Claim 8, upon which claims 9-14 depend, is directed to a method including retrieving a second data record to be verified from a single database. The method also includes retrieving a second integrity checksum of the second data record, wherein the first data record and the second data record are consecutive data records in the database. The method further includes retrieving a first integrity checksum of the first data record previous to the retrieved second data record. The method additionally includes computing a third integrity checksum for the second data record based on the retrieved second data record, the first integrity checksum, and a storage key. The method also includes comparing the second integrity checksum to the third integrity checksum, wherein the second data record is considered authentic when the second integrity checksum and the third integrity checksums are equal.

Claim 15, upon which claim 16 depends, is directed to a system including a single database configured to store and provide signed data. The system also includes a data source configured to provide data records to be stored on the database. The system further includes a signing entity configured to sign data records to be stored on the database system with a second integrity checksum computed based on a second data record, a first integrity checksum of the first data record previous to the second data record to be signed, and a storage key, wherein the first data record and the second data

record are consecutive data records in the database. The system additionally includes a verification entity configured to verify integrity of chosen data records by computing a computed third integrity checksum based on the second data record, the first integrity checksum of the first data record previous to the second data record, and the storage key, and comparing the computed third integrity checksum to the second integrity checksum stored on the database.

Claim 24, upon which claims 25-30 depend, is directed to a computer program embodied a computer-readable medium for verifying the integrity of data records on a single database, wherein the computer program performs a process comprising the following, when executed in a computer device. Specifically, the process includes retrieving a second data record to be verified from a database. The process also includes retrieving a second integrity checksum of the second data record to be verified from a database. The process further includes retrieving a first integrity checksum of a first data record previous to the retrieved second data record, wherein the first data record and the second data record are consecutive data records in the database. The process additionally includes computing a third integrity checksum for the second data record based on the retrieved second data record, the first integrity checksum, and a storage key. The process also includes comparing the second integrity checksum to the third integrity checksum, wherein the second data record is considered authentic when the second integrity checksum and the third integrity checksums are equal.

Claim 31, upon which claim 32 depends, is directed to a system including storage means for storing and providing signed data, wherein the storage means is singular. The system also includes provision means for providing data records to be stored on the storage means. The system further includes signing means for signing data records to be stored on the storage means with a second integrity checksum computed based on a second data record, a first integrity checksum of the first data record previous to the second data record to be signed, and a storage key, wherein the first data record and the second data record are consecutive data records in the database. The system additionally includes verification means for verifying integrity of chosen data records by computing a computed third integrity checksum based on the second data record, the first integrity checksum of the first data record previous to the second data record, and the storage key, and comparing the computed third integrity checksum to the second integrity checksum stored on the storage means.

Applicants respectfully submit that Owen fails to disclose or suggest, or otherwise render obvious, all of the elements of any of the presently pending claims.

Owen generally relates to an apparatus and method for validating a database record before applying journal data. Owen discusses a system relating to journaling databases. In principle a journaling database is a database that logs changes to a journal (usually a circular log in a specially-allocated area) before actually writing them to the main database. Such databases are less likely to become corrupted in the event of power failure or system crash.

At column 1, lines 39-47, Owen defines what a data journal of Owen is. “Most journals known in the art record all fields in a record before a change is made to the record, including fields in the record that do not change. Because recording data that has not changed takes valuable space and time in a database journal, a newer concept known as minimized data journaling was introduced. With a minimized data journal, only the changed fields of a record are recorded, which assumes that the fields in the record that are not represented in the journal did not change.”

At item 10, the Office Action discussed the features of independent claims 8, 15, 24 and 31, by comparing those features to Owen. For the discussion below, the “first feature,” “second feature,” and so forth is in reference to the list presented in the Office Action.

Before a detailed discussion of those features, however, it must be noted that the fundamental differences is that journal entries always relate to changes made in the database. Certain embodiments of the present invention are designed for preventing any changes except adding a new complete record with corresponding integrity check sum. These two elements are always new information that cannot be derived from modifications of the earlier data.

First feature: it is said in the Office Action that “retrieving a second data record to be verified from the single database,” as recited in claim 8, corresponds to “the minimized data journal entry is read,” as allegedly taught in Owen. These two things are not the same because the second data record (as claimed) is a complete data record and

not a minimized journal entry, as the term “data record” would be interpreted by one of ordinary skill in the art, reading the claim in light of the specification without importing limitations from the specification into the claims.

Second feature: it is said in the Office Action that “retrieving a second integrity checksum,” as recited in claim 8, corresponds to a redundancy check. The checksum (as claimed), however, is used only for checking the integrity of the data record. Integrity is not same as redundancy. Integrity means that the contents of the records must not have been altered to any changes and the records must be in the same order as they were stored. Then, it is said in the Office Action that “when the minimized data journal entry is to be applied to the corresponding database record, a validation value for the record is first computed using the same algorithm used to compute the validation value stored in the journal entry.” (emphasis added) In the cited step of the method, however, nothing is computed but the integrity checksum is retrieved from the database. Thus, the alleged correspondence is improper.

Third feature: the Office Action indicated that “retrieving a first integrity checksum” (as recited in claim 8) corresponds to “the validation value comprises a checksum that is computed using both the data in the old record and the metadata for the old record,” as allegedly taught in Owen. This has a similar problem to the previous argument, as nothing is computed in the recited step.

Furthermore, if this portion of the claim is so interpreted, the old record of Owen must (under the Office Action’s interpretation) correspond to the first data record of the

claims. In the claims, however, the second integrity checksum would then have to be computed based on the old record (first integrity checksum) and the current record (second data record). Thus, the computation recited in the presently pending claims is not anticipated by Owen.

Fourth feature: This is actually the only feature in the claim that recites computing (“computing a third integrity checksum” as recited in claim 8). It is said, in the Office Action, that the computing is similar to the one that was disclosed with reference to the third feature (above). However, as argued above, the computation is not the same. Furthermore, the computation is not similar in any meaningful or “obvious” way. Instead, the computation is simply and entirely different.

Fifth feature: The Office Action stated that the comparison (“comparing the second integrity checksum to the third integrity checksum ...” as recited in claim 8) is same as “If the two validation values match, we know with a high level of confidence that the record is in the identical state it was in just before the changes reflected in the journal entry were made,” as allegedly taught in Owen. In claims 8, 15, 24, and 31 there is, however, no mechanism recited for making changes. The whole purpose of certain embodiments of the technology disclosed in these claims is to verify that changes have not been made at all. Thus, Owen’s disclosure is not an obvious variant of what is claimed, it is a completely different technology.

In short, Owen does not disclose a system similar to the present invention. The only arguably common feature is that both are related to databases. The purpose of the

present invention (in various disclosed embodiments) is completely different and the mechanisms for providing the solution for the problems of the cited art are completely different. Thus, it is respectfully submitted that each of independent claims 8, 15, 24, and 31 is non-obvious with respect to Owen, and it is respectfully requested that the rejection of claims 8, 15, 24, and 31 be withdrawn.

Claims 12-13 and 28-29 depend respectively from, and further limit, claims 8 and 24. Thus, claims 12-13 and 28-29 also recite subject matter that is neither disclosed nor suggested in the cited art. It is, therefore, respectfully requested that the rejections of each of claims 12-13 and 28-29 be withdrawn.

Claims 9, 16, 25, and 32 were rejected under 35 U.S.C. 103(a) as being unpatentable over Owen in view of U.S. Patent Application Publication No. 2003/0023850 of Brown et al. (“Brown”). Claims 10 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over Owen in view of U.S. Patent No. 4,864,616 of Pond et al. (“Pond”). Claims 11 and 27 were rejected under 35 U.S.C. 103(a) as being unpatentable over Owen in view of Applicant’s allegedly Admitted Prior Art (AAPA). Claims 14 and 30 were rejected under 35 U.S.C. 103(a) as being unpatentable over Owen in view of U.S. Patent No. 6,557,044 of Cain et al. (“Cain”). In view of the distinctions noted above, with respect to Owen, it is apparent that each of these rejections is based on a fundamentally flawed premise that Owen discloses the basic features of the claims.

Since none of the cited references remedies the above-identified deficiencies of Owen, it is respectfully submitted that each of the rejections is in error and should be

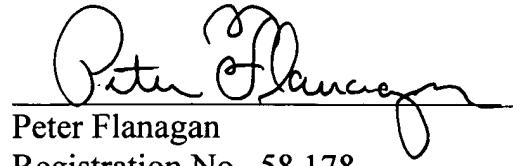
withdrawn. The assertion of AAPA is respectfully traversed as moot, since – in any event – the alleged AAPA does not remedy the above-identified deficiencies of Owen. Thus, withdrawal of each of the rejections of the claims is respectfully requested.

For all the reasons set forth above, it is respectfully submitted that each of claims 1-44 recites subject matter that is neither disclosed nor suggested in the cited art. It is, therefore, respectfully requested that all of claims 1-44 be allowed, and that this application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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Enclosures: Additional Claims Transmittal
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